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Thomas H. Close
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER	
ROSARIO, DENNIS	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/879,343	Applicant(s) GALLAGHER ET AL.	
	Examiner Dennis Rosario	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *AF amt. 04/18/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,9,10,12-15,17-21 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *13 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The after final amendment was received on April 18, 2005. Claims 1,3-5,9,10,12-15,17-21,27-29 are pending.

Allowable Subject Matter

2. The indicated allowability of claim 1 is withdrawn in view of the newly discovered reference(s) to Burns et al. (US Patent 6,707,950 B1). Rejections based on the newly cited reference follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1,3-5,9,10,12,14,17-21,27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Burns et al. (US Patent 6,707,950 B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Burn et al. discloses a method for estimating the noise appearance in an image, comprising the steps of:

a) forming a noise table (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51.) representing noise magnitude vs. intensity (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 representing noise magnitude that corresponds to a vertical axis vs. intensity that corresponds to the horizontal axis of fig. 7.) of the image (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 representing noise magnitude that corresponds to a vertical axis vs. intensity that corresponds to the horizontal axis of fig. 7 of the image, $f_{i+1}(x,y)$, of fig. 4.); and

b) generating a noise metric (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 generates a noise metric or "standard deviation [of noise]" in col. 7, lines 53,54.) from the noise table (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 generates a noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 and shown in the vertical axis from the noise table of fig. 7.), said noise metric (The noise metric or "standard deviation [of noise]" in col. 7, lines 53,54.) representing the noise appearance in the image as seen by a human observer (The noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 represents the noise appearance in the image, f_{i+1} (x,y) of fig. 4, as seen by a human observer using fig. 1, num. 12: IMAGE OUTPUT which is a device that a human would use to see the displayed image, f_{i+1} (x,y) of fig. 4.);

c) wherein the step of forming a noise table (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51.) includes the steps of:

a1) forming an input noise table (Fig. 4, label "M_i" corresponds to forming or "providing" in col. 2, line 51 a noise table as shown in fig. 6.) representing noise magnitude vs. intensity (Fig. 4, label "M_i" corresponds to forming or "providing" in col. 2, line 51 a noise table as shown in fig. 6 that represents noise magnitude that corresponds to a vertical axis vs. intensity that corresponds to the horizontal axis of fig. 6) of an input image (Fig. 4, label "M_i" corresponds to forming or "providing" in col. 2, line 51 a noise table as shown in fig. 6 that represents noise magnitude that corresponds to a vertical axis vs. intensity that corresponds to the horizontal axis of fig. 6 of an input image, f_i (x,y) of fig. 4.);

a2) providing an image processing chain (Fig. 1, num. 10: IMAGE PROCESSING CHAIN provides an image processing chain as shown in figs. 2 and 3, num. 10 and fig. 4,num. 20_{i+1}.) including one or more image transforms (Fig. 4,num. 20_{i+1} is one image transform.);

a3) determining an appropriate noise transform (Fig. 4, num. 40_{i+1} : METADATA TRANSFORM GENERATOR i+1 determines or "generates...an appropriate...transform for...noise data (col. 6, lines 15-19).") defining [the] **an** effect (Fig. 4, num. 40_{i+1} : METADATA TRANSFORM GENERATOR i+1 determines or "generates...an appropriate...transform for...noise data (col. 6, lines 15-19)" defining an effect via an output arrow of 40_{i+1} that causes the effect.) that each image transform will have on the noise in the image (Fig. 4, num. 40_{i+1} : METADATA TRANSFORM GENERATOR i+1 determines or "generates...an appropriate...transform for...noise data (col. 6, lines 15-19)" defining an effect via an output arrow of 40_{i+1} that causes the effect that each image transform, fig. 4,num. 20_{i+1}: IMAGE TRANSFORM i+1, via the process of num. 40_{i+1} will have on the noise or "noise data" in col. 6, lines 15-19, M_i of fig. 4, in the image f_i (x,y) to define the above mentioned effect.); and

a4) applying the one or more noise transforms (The transform for...noise data (col. 6, lines 15-19) and shown in fig. 4, num. 30_{i+1}: METADATA TRANSFORM I+1 is applied via inputting M_i of fig. 4.) to the input noise table (The transform for...noise data (col. 6, lines 15-19) and shown in fig. 4, num. 30_{i+1}: METADATA TRANSFORM I+1 is applied via inputting M_i of fig. 4 which corresponds to the noise table as shown in fig. 6.) to produce the noise table (The transform for...noise data (col. 6, lines 15-19) and shown in fig. 4, num. 30_{i+1}: METADATA TRANSFORM I+1 is applied via inputting M_i of fig. 4 which corresponds to the noise table as shown in fig. 6 to produce the noise table as shown in fig. 7 and mentioned in col. 7, lines 45-51.) representing an estimate (The transform for...noise data (col. 6, lines 15-19) and shown in fig. 4, num. 30_{i+1}: METADATA TRANSFORM I+1 is applied via inputting M_i of fig. 4 which corresponds to the noise table as shown in fig. 6 to produce the noise table, "M_{i+1}" in col. 8, line 43 of fig. 4 and shown in fig. 7 and mentioned in col. 7, lines 45-51 which represents an "estimat[e]" in col. 8, line 41.) of the noise in the image (The transform for...noise data (col. 6, lines 15-19) and shown in fig. 4, num. 30_{i+1}: METADATA TRANSFORM I+1 is applied via inputting M_i of fig. 4 which corresponds to the noise table as shown in fig. 6 to produce the noise table, "M_{i+1}" in col. 8, line 43 of fig. 4 and shown in fig. 7 and mentioned in col. 7, lines 45-51 which represents an "estimat[e]" in col. 8, line 41 of the noise or "noise data" in col. 6, lines 15-19, M_i of fig. 4, in the image f_i (x,y).); and

d) further comprising the steps of:

d1) forming a predetermined input noise table (Fig. 6 is a predetermined input noise table is “provided” in col. 9, line 60.) for a specific image capture process (Fig. 6 is a predetermined input noise table is “provided” in col. 9, line 60 for a specific image capture process or “scanned film” in col. 7, line 46.);

d2) using the predetermined input noise table (Fig. 6 is a predetermined input noise table that is used in the process of fig. 4) to generate the noise metric (Fig. 6 is a predetermined input noise table that is used in the process of fig. 4 to generate the noise metric or “standard deviation [of noise]” in col. 7, lines 53,54.) for an image (Fig. 6 is a predetermined input noise table that is used in the process of fig. 4 to generate the noise metric or “standard deviation [of noise]” in col. 7, lines 53,54 for an image f_{i+1} (x,y) of fig. 4.) captured by the specific process (Fig. 6 is a predetermined input noise table that is used in the process of fig. 4 to generate the noise metric or “standard deviation [of noise]” in col. 7, lines 53,54 for an image f_{i+1} (x,y) of fig. 4 captured by the specific process or “scanned film” in col. 7, line 46.).

Regarding claim 3, Burns et al. discloses the method claimed in claim 1, wherein one of said image transforms (Fig. 4,num. 20_{i+1} is one image transform.) is a digital image processing step (Fig. 4,num. 20_{i+1} is one image transform that transforms a “digital image” in abstract.).

Regarding claim 4, Burn et al. discloses the method claimed in Claim 1, wherein one of said image transforms (Fig. 4,num. 20_{i+1} is one image transform.) is an image rendering step (Fig. 4,num. 20_{i+1} is one image transform that can be rendered using fig. 1,num. 12: IMAGE OUTPUT.).

Regarding claim 5, Burns et al. discloses the method claimed in Claim 1, wherein one of said image transforms (Fig. 4,num. 20_{i+1} is one image transform.) is human visual perception (Fig. 4,num. 20_{i+1} is one image transform that can display the results of the transfoem using fig. 1,num. 12: IMAGE OUTPUT where a human can perceive via a visual display of the image.).

Regarding claim 9, Burns et al. discloses the method claimed in Claim 1, further comprising the step of:

a) weighting the noise table ("spatial filters" in col. 9, line 42 weight via "coef-ficients" in col. 8, lines 48,49 the noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51 for the process of "noise transforms" in col. 9, line 41.) by a weighting function ("spatial filters" in col. 9, line 42 weight via "coef-ficients" in col. 8, lines 48,49 the noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51 for the process of "noise transforms" in col. 9, line 41 by a weighting function of equation 12 in column 8.).

Regarding claim 10, Burns et al. discloses the method claimed in Claim 9, wherein the weighting function (The weighting function of equation 12 in column 8.) represents a histogram (The weighting function of equation 12 in column 8 represents a histogram because it used in a filtering process for discriminating "high frequencies" in col. 9, line 7 from low frequencies or "uniform back-grounds" in col. 9, lines 8,9.) of the image.

Regarding claim 12, Burns et al. discloses the method claimed in Claim 1, wherein the step of generating a noise metric (Fig. 4, num. 30_{i+1}: METADATA TRANFORM i+1 generates a noise metric or "standard deviation [of noise]" in col. 7, lines 53,54.) includes the step of:

a) locating [the] **a** peak value (Fig. 7 shows a vertical axis that can be used to locate a peak value or "high noise" in col. 7, line 58.) of the noise table (Fig. 7 shows a vertical axis that can be used to locate a peak value or "high noise" in col. 7, line 58 that was generated from fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 that forms the noise table as shown of fig. 7 and mentioned in col. 7, lines 50,51.) to obtain the noise metric (Fig. 7 shows a vertical axis that can be used to locate a peak value or "high noise" in col. 7, line 58 that was generated from fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 that forms the noise table as shown of fig. 7 and mentioned in col. 7, lines 50,51 and obtains the noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 via the above mentioned vertical axis.).

Regarding claim 14, Burns et al. discloses the method claimed in claim 1, wherein the step of generating the noise metric (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 generates a noise metric or "standard deviation [of noise]" in col. 7, lines 53,54.) includes the step of:

a) performing a summation (Equation 14 performs summation.) of the noise table (Using an equation of column 9, line 63 and mentioned in col. 9, lines 59-65, equation 14 performs summation of the noise table, N and shown in fig. 7 and mentioned in col. 7, lines 50,51.).) to obtain the noise metric (Using an equation,σ, of column 9, line 63 and mentioned in col. 9, lines 59-65, equation 14 performs summation of the noise table, N and shown in fig. 7 and mentioned in col. 7, lines 50,51 to obtain the noise metric or "standard...deviation" in col. 9, line 64,σ.)

15 (original). The method claimed in Claim 14, further including the step of taking the logarithm of the integration or summation to obtain the noise metric.

Regarding claim 17, Burns et al. discloses the method claimed in claim 1, wherein the image capture process (The specific image capture process or "scanned film" in col. 7, line 46.) is a photographic process using a particular photographic film.

Claim 18 is rejected the same as claim 17. Thus, argument similar to that presented above for claim 17 is equally applicable to claim 18.

Regarding claim 19, Burns et al. discloses the method claimed in claim 1, wherein the image capture process (The specific image capture process or "scanned film" in col. 7, line 46.) employs a particular digital camera ("digital camera" in col. 4, line 24).

Regarding claim 20, Burns et al. discloses the method claimed in claim 1, further comprising the step of using the noise metric (The noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 as shown in the vertical axis of fig. 6 is used in the process of fig. 4 as an input M_i.) to estimate (The noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 as shown in the vertical axis of fig. 6 is used in the process of fig. 4 as an input M_i for "estimating" in col. 8, line 41.) [the] **an** image quality (The noise metric or "standard deviation [of noise]" in col. 7, lines 53,54 as shown in the vertical axis of fig. 6 is used in the process of fig. 4 as an input M_i for "estimating" in col. 8, line 41 an image quality "metadata M_{i+1}" in col. 8, line 43.).

Regarding claim 21, Burns et al. discloses the method claimed in Claim 4, wherein the image rendering step is selected from the group consisting of:

a) a photographic printing step (Fig. 1, num. 12:IMAGE OUTPUT is "a photographic printer" in col. 4, line 26 step.),

b) an ink jet printing step,

c) a softcopy display step,

d) a thermal printing step,

e) an electrophotographic printing step, and

f) a laser printing step.

Regarding claim 27, Burn et al. discloses the method claimed as in Claim 1, wherein:

a) the image (The image, f_{i+1} (x,y), of fig. 4.) is an output image (The image, f_{i+1} (x,y), of fig. 4 is outputted from the process of fig. 4,num. 20_{i+1}.),

b) the noise table (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51.) is an output noise table (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 forms a noise table as shown in fig. 7 and mentioned in col. 7, lines 50,51 and shown in fig. 4 as label M_{i+1}. which is outputted from the process of fig. 4, num. 30_{i+1}.), and

c) the noise metric (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 generates a noise metric or “standard deviation [of noise]” in col. 7, lines 53,54.) is an output noise metric (Fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 generates a noise metric or “standard deviation [of noise]” in col. 7, lines 53,54 as shown in the vertical axis of fig. 7 which corresponds to the output M_{i+1} of fig. 4.).

Regarding claim 29, Burns et al. discloses the method claimed as in claim 1, further comprising the step of:

a) sorting images (Fig. 3 shows an image f_0 (x, y) that is sorted which is a form of arranged or separated via an image transform chain from an image f_N(x,y).) from least to most noisy in appearance (Fig. 3 shows an image f_0 (x, y) that is sorted which is a form of arranged or separated via an image transform chain from an image f_N(x,y) from least to most noisy in appearance or "along an image processing chain to improve...image quality (col. 2, lines 43-47).") according to the noise metric (Fig. 3 shows an image f_0 (x, y) that is sorted which is a form of arranged or separated via an image transform chain from an image f_N(x,y) from least to most noisy in appearance or "along an image processing chain to improve...image quality (col. 2, lines 43-47)" according to the noise metric generated in fig. 4, num. 30_{i+1} : METADATA TRANFORM i+1 that generates a noise metric, M_i as seen in fig. 3, or "standard deviation [of noise]" in col. 7, lines 53,54.).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (US Patent 6,707,950 B1) in view of Burns et al. (US Patent 6,707,950 B1).

Regarding claim 28, Burns et al. teaches the limitation of predicting [the] **an** appearance of noisiness of an image ("estimating non-image information" in col. 1, lines 58,59 such as "noise statistics" in col. 1, lines 17-20) as seen ("estimating non-image information" in col. 1, lines 58,59 such as "noise statistics" in col. 1, lines 17-20 which "can be seen to characterize...image noise in actual scenes" in col. 1, line 43.) by a human observer ("estimating non-image information" in col. 1, lines 58,59 such as "noise statistics" in col. 1, lines 17-20 which "can be seen to characterize...image noise in actual scenes acquired" in col. 1, line 43; where the word "seen" corresponds to a human action that sees image noise in actual scenes acquired.) using a noise metric ("estimating non-image information" in col. 1, lines 58,59 such as "noise statistics" in col. 1, lines 17-20 which "can be seen to characterize...image noise in actual scenes acquired" in col. 1, line 43; where the word "seen" corresponds to a human action that sees image noise in actual scenes acquired using a noise metric or "rms values" in col. 1, line 23.) from a noise table ("estimating non-image information" in col. 1, lines 58,59 such as "noise statistics" in col. 1, lines 17-20 which "can be seen to characterize ...image noise in actual scenes acquired" in col. 1, line 43; where the word "seen" corresponds to a human action that sees image noise in actual scenes acquired using a noise metric or "rms values" in col. 1, line 23 from a noise table or "table or noise" in col. 1, lines 22,23.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Burns et al.'s teaching of estimating will "account" in col. 1, lines 55,58 for image "quality" in col. 1, line 57.

Allowable Subject Matter

7. Claims 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 13 is allowable because the prior art does not suggest or teach the limitation of taking the logarithm of the peak value to obtain the noise metric for a proper combination. The closest prior art that teaches the limitation of taking the logarithm of the peak value is taught in Riederer (US Patent 4,367,490 A) as shown in fig. 2 where the left side shows a peak value with a corresponding logarithm axis. However, Burns et al. does not suggest using or modifying the peak value and instead describes what generates the peak value as shown in fig. 7.

Claim 15 is allowable because the prior art does not suggest or teach the limitation of taking the logarithm of integration or summation to obtain the noise metric for a proper combination. The closest prior art, Riederer, teaches the limitation of taking the logarithm as shown in fig. 2 of integration or summation or "sum of the squares" in col. 7, line 60 to obtain the noise metric or as shown in fig. 2, label: NOISE IN LOGARITHM OF VIDEO SIGNAL. However, Burns et al. does not suggest using or modifying the summation as shown in equation 14 of column 10 with a logarithm.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DR
Dennis Rosario
Unit 2621

BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600